Q 1)

a. If Local beam search has k=1 it chooses the best neighbor step and it is the Hill-Climbing search
b. If Local beam search has k unlimited it will retain all nodes of the next depth and it is the Breadth-First Search
c. It would get stuck, it would remind the Hill-Climbing Search when there are just downwards neighbor around the current node
d. It would choose the offspring of a state at random according to its value, resembling the Stochastic Local Beam Search

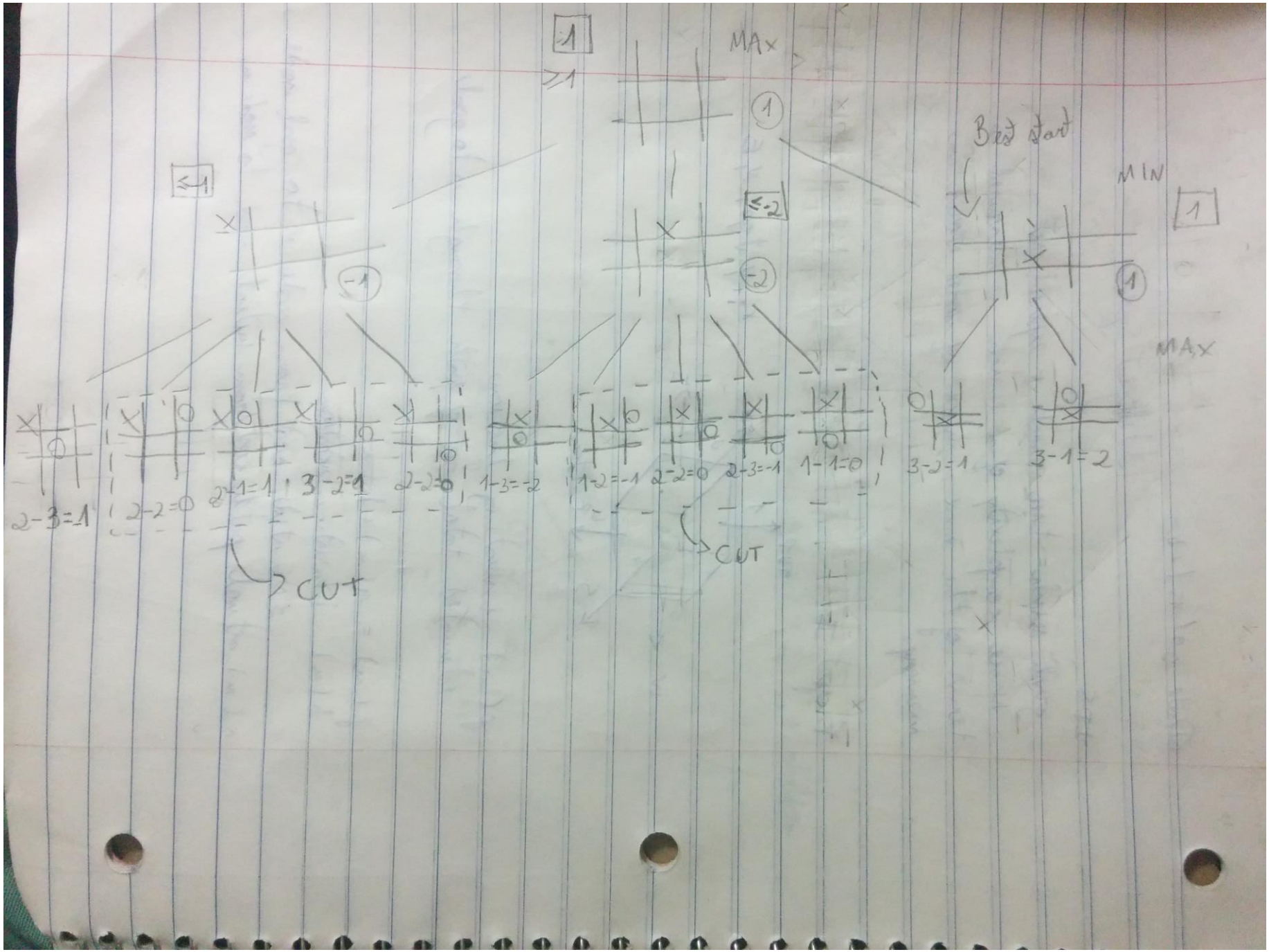
Q 2)

The game Peg Solitaire, the goal of the game is to have just one piece in the board, the path to the solution is irrelevant, therefore the local search would fit perfectly. The game consists in one board with holes forming a cross, pieces are positioned in each hole, except for the central hole in which remains empty, to play one piece has to jump into another hole and then remove the jumped piece.

Q 3)

a. There are 9! possible games, but in general games end up with 5 moves.

P.S.: answers from b to e are in the draw in the next page.


MAX
≥1
1
Best start
MIN
≤-1
-1
≤-2
-2
1
MAX
2-3=1
2-2=0
2-1=1
3-2=1
2-2=0
1-3=-2
1-2=-1
2-2=0
2-3=-1
1-1=0
3-2=1
3-1=2
CUT
CUT